

# **NX 6 Assembly Modeling Update**

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## Active Mockup

### Integrated environment for layout, design, & validation of products

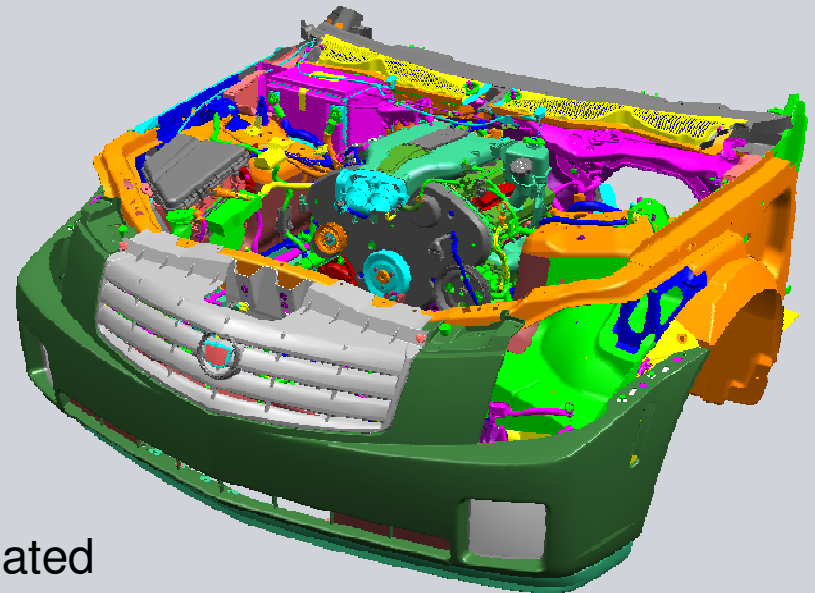
- High performance & capacity
- Sophisticated context-setting tools
- Comprehensive set of visualization & validation capabilities

Brings large scale mockup tools into design environment

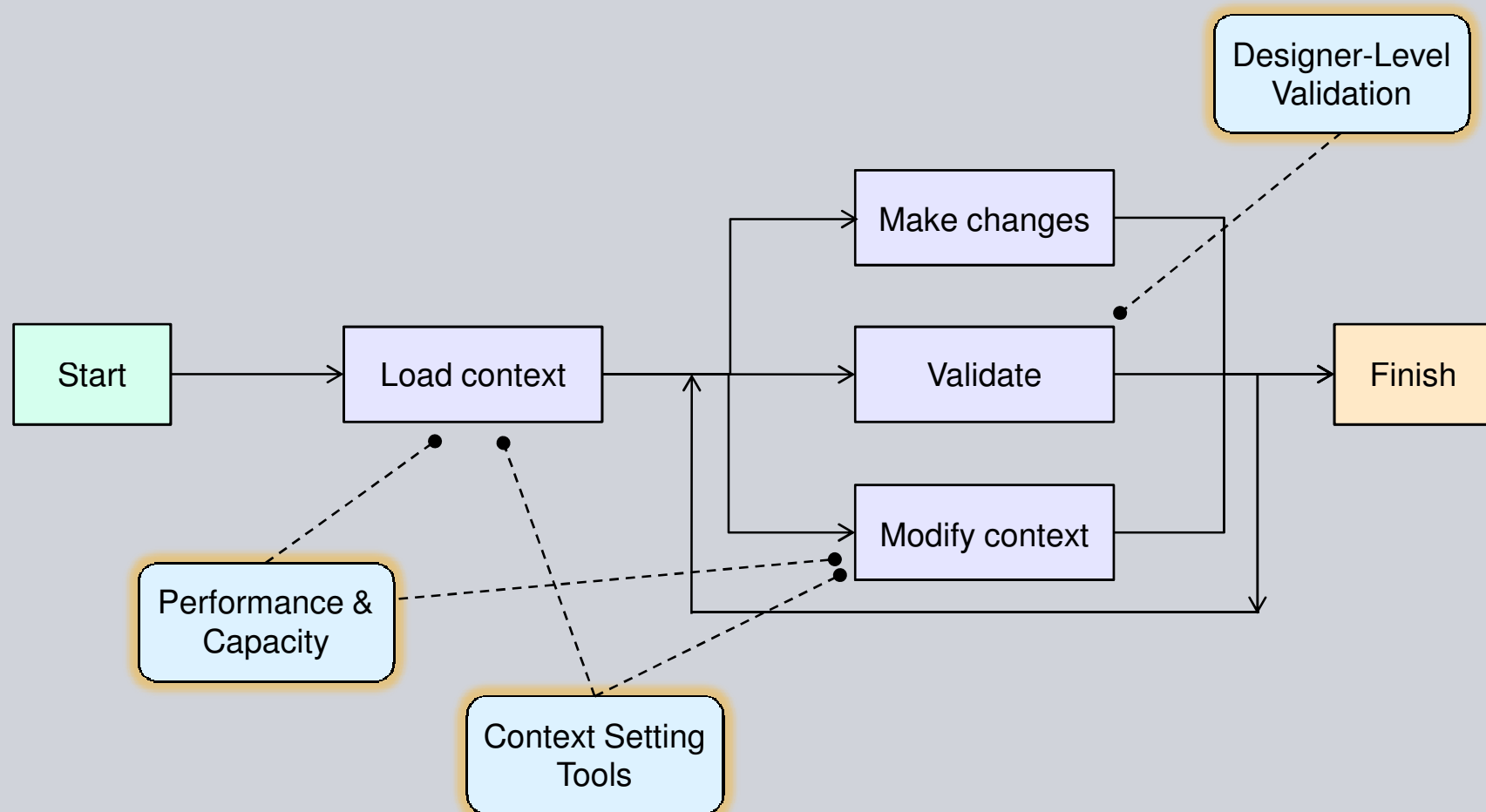
### Benefits

Parts and subassemblies designed and validated up front against total product

Mockup becomes **active** part of design process



## Typical Design Workflow

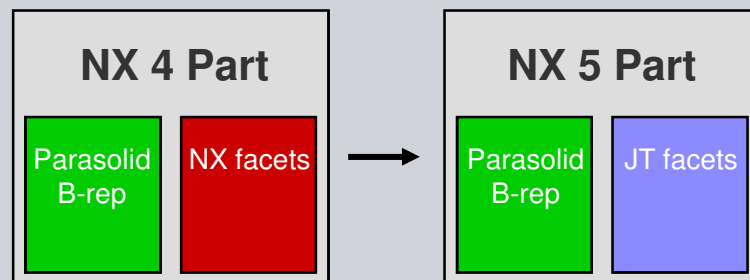


## Active Mockup in NX 5

World class mockup technology  
in a design environment

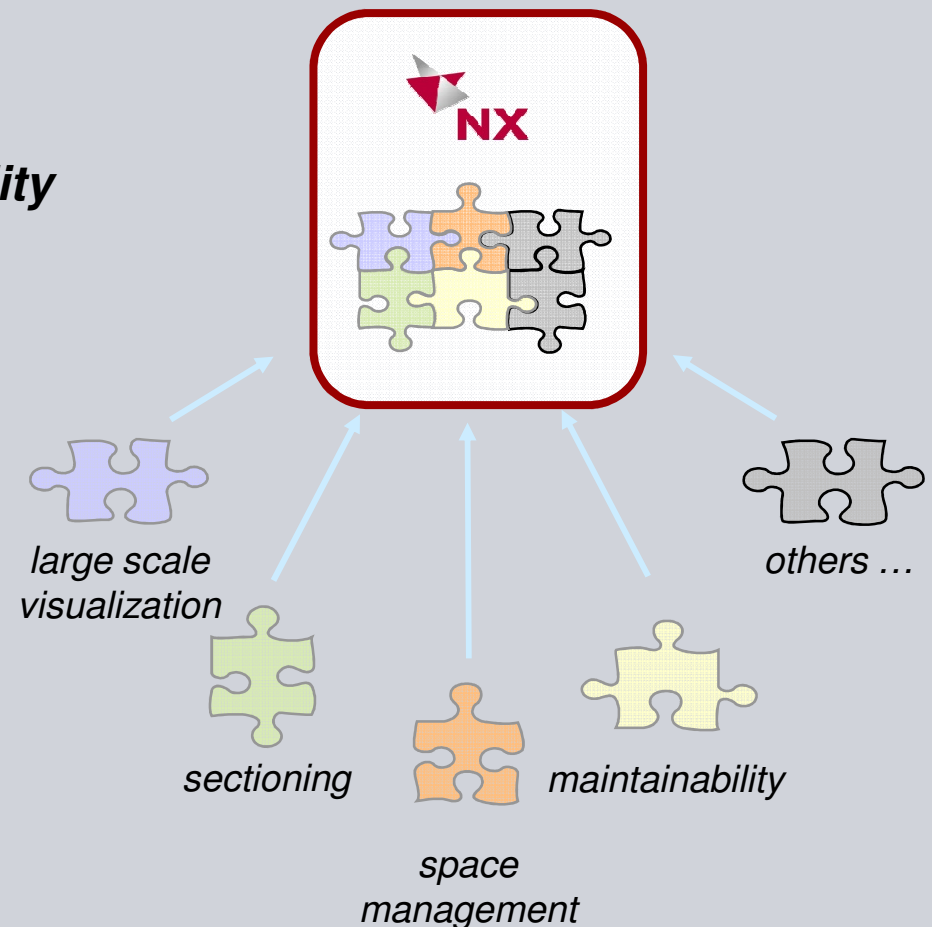
JT technology inside NX

- New levels of **performance & scalability**
- Enhanced **assembly analysis**

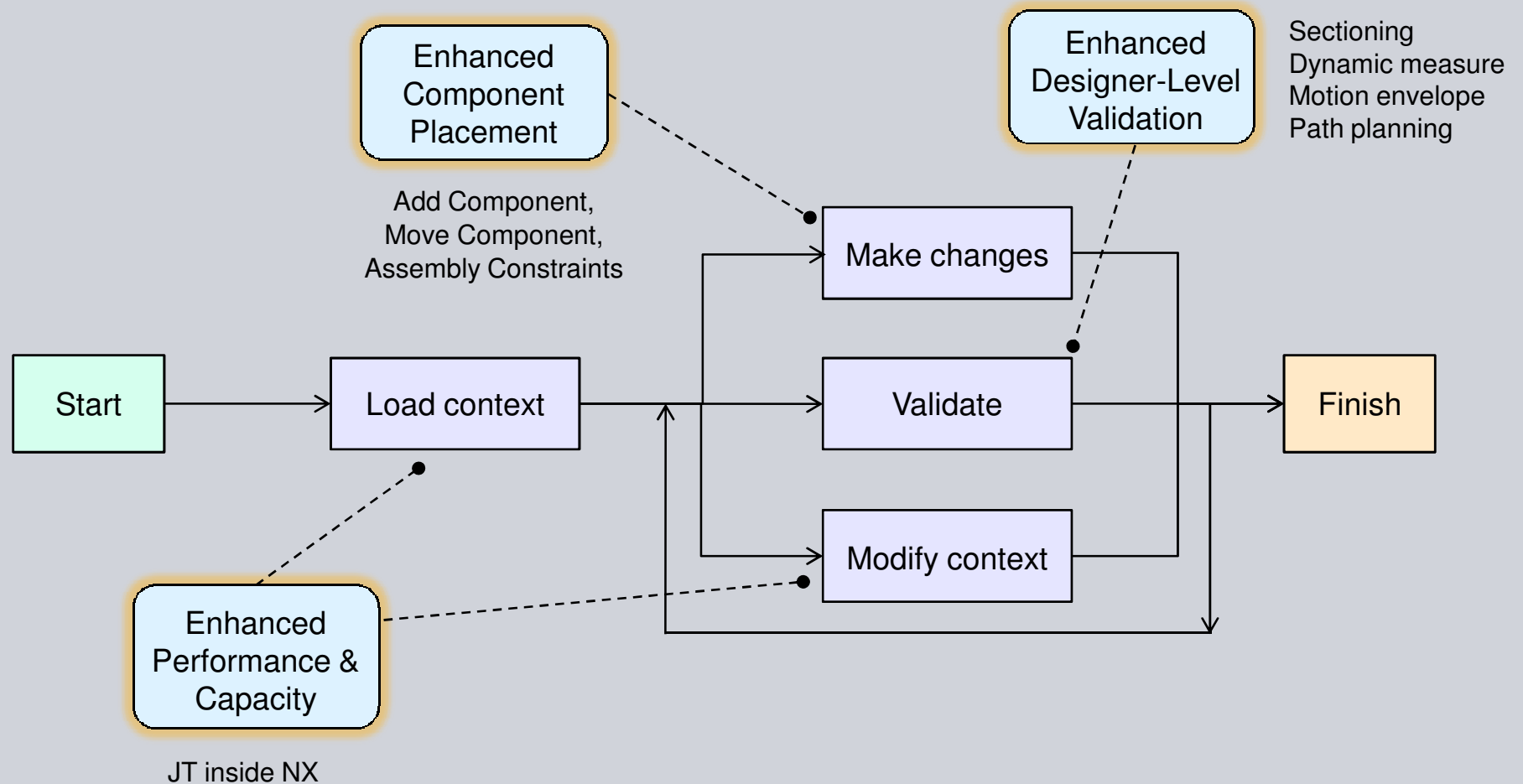


## Benefits

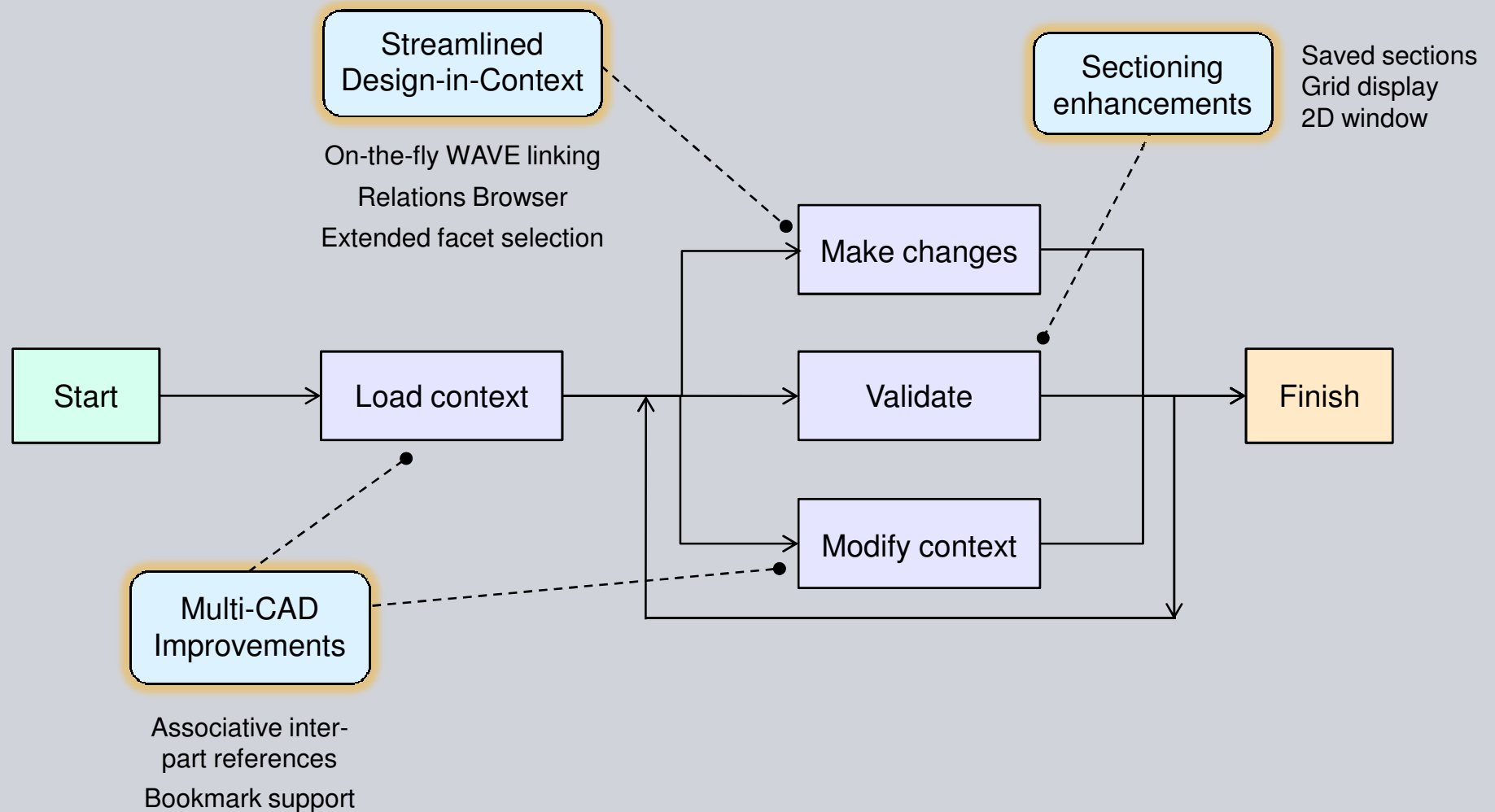
Designer has everything they need  
in one place



# Typical Design Workflow – Key NX 5 Improvements



# Typical Design Workflow – Key NX 6 Improvements



## Design in Context

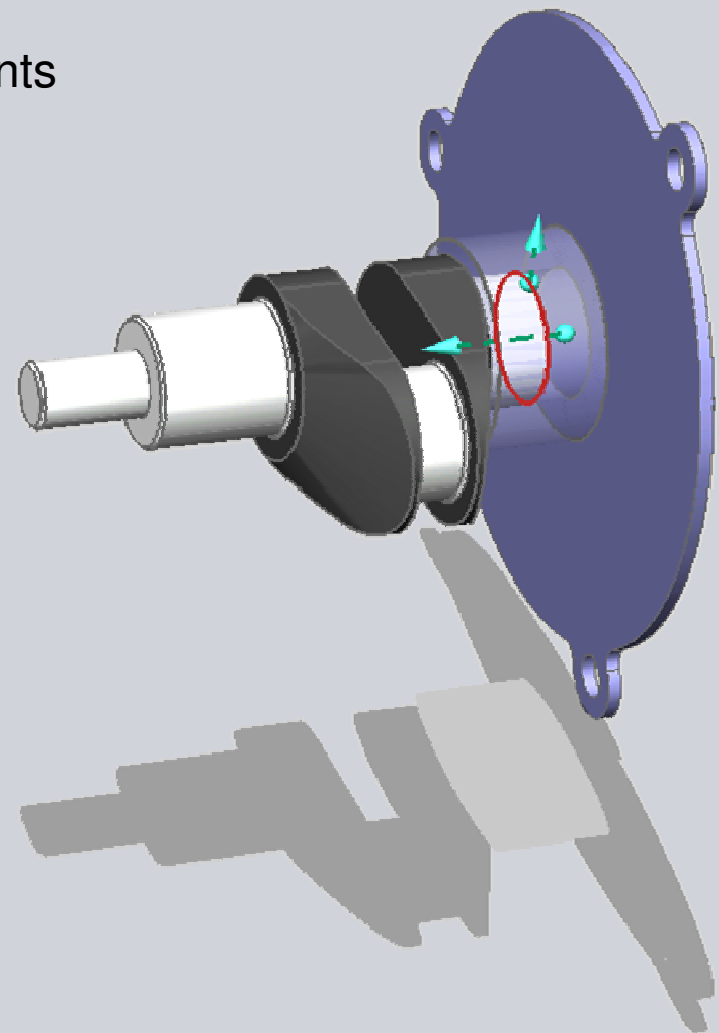
Direct selection of geometry in other components during feature creation

- Optional associativity (creates WAVE link)

Available in key modeling commands (e.g. extrude, trim, subtract)

### Benefit

Streamlines modeling of interacting parts and building of inter-part relations



## Design in Context

### Associativity Controls

Allow Associative Interpart Modeling

- ☒ Yes  
☐ Yes, but Not within Commands  
☐ No

Customer defaults

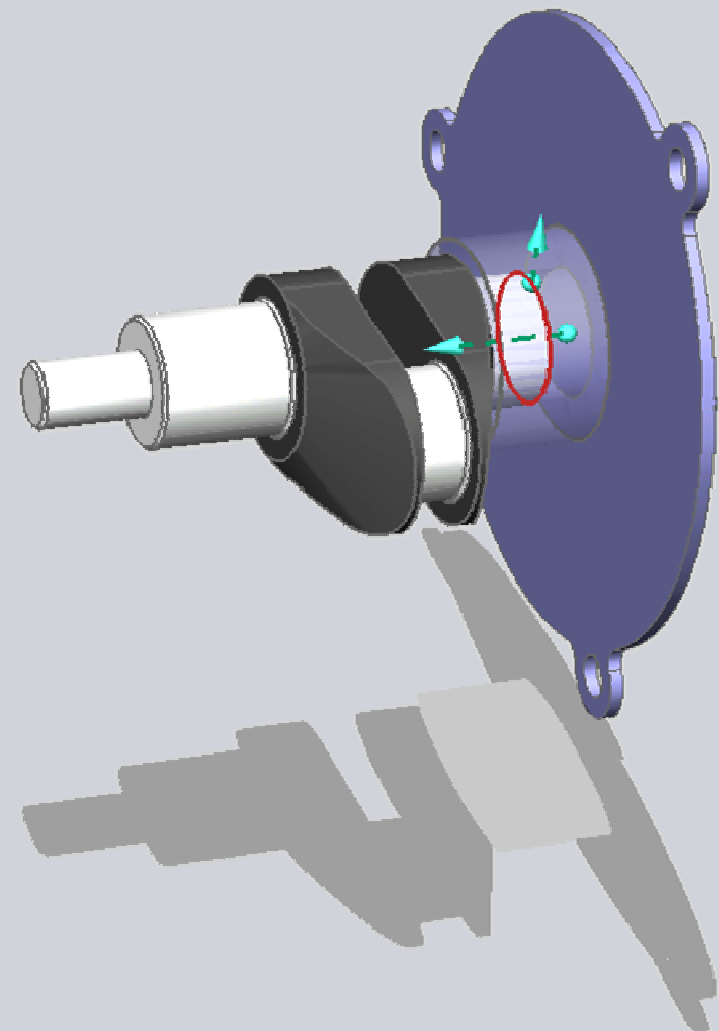
Entire Assembly



Selection controls during feature creation

### Benefit

Guards against accidental creation of inter-part links





## Relations Browser

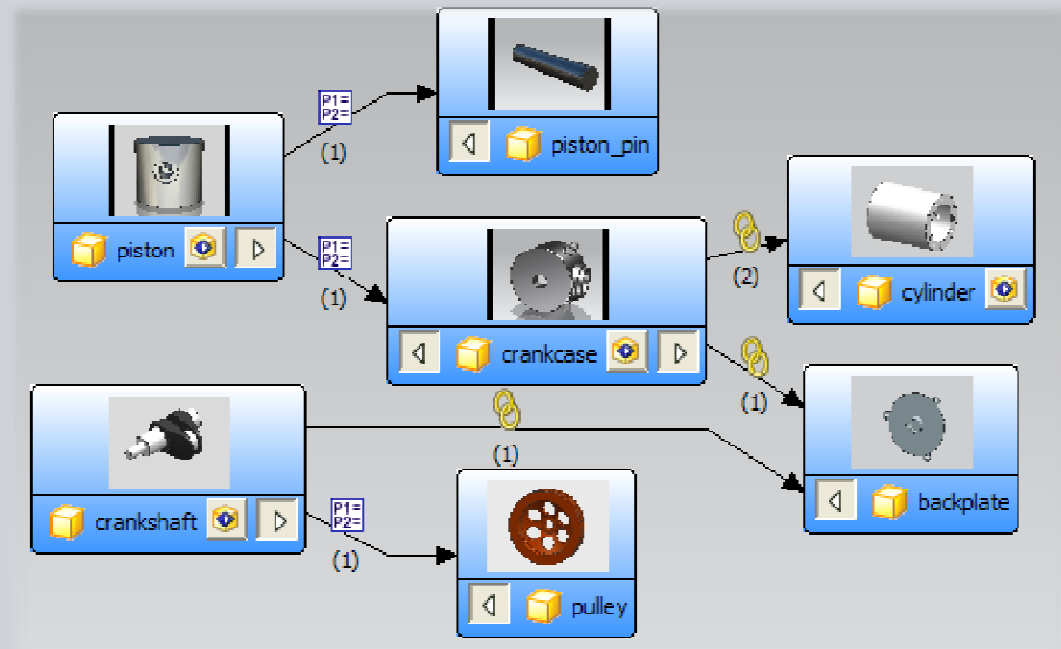
Graphical network representation of inter-part dependencies

- WAVE
- Inter-part expressions

Uses Teamcenter to find relations to unloaded parts

Shows product interfaces

Reports Circularities



## Benefit

Easier investigation of inter-part relationships & impact analysis

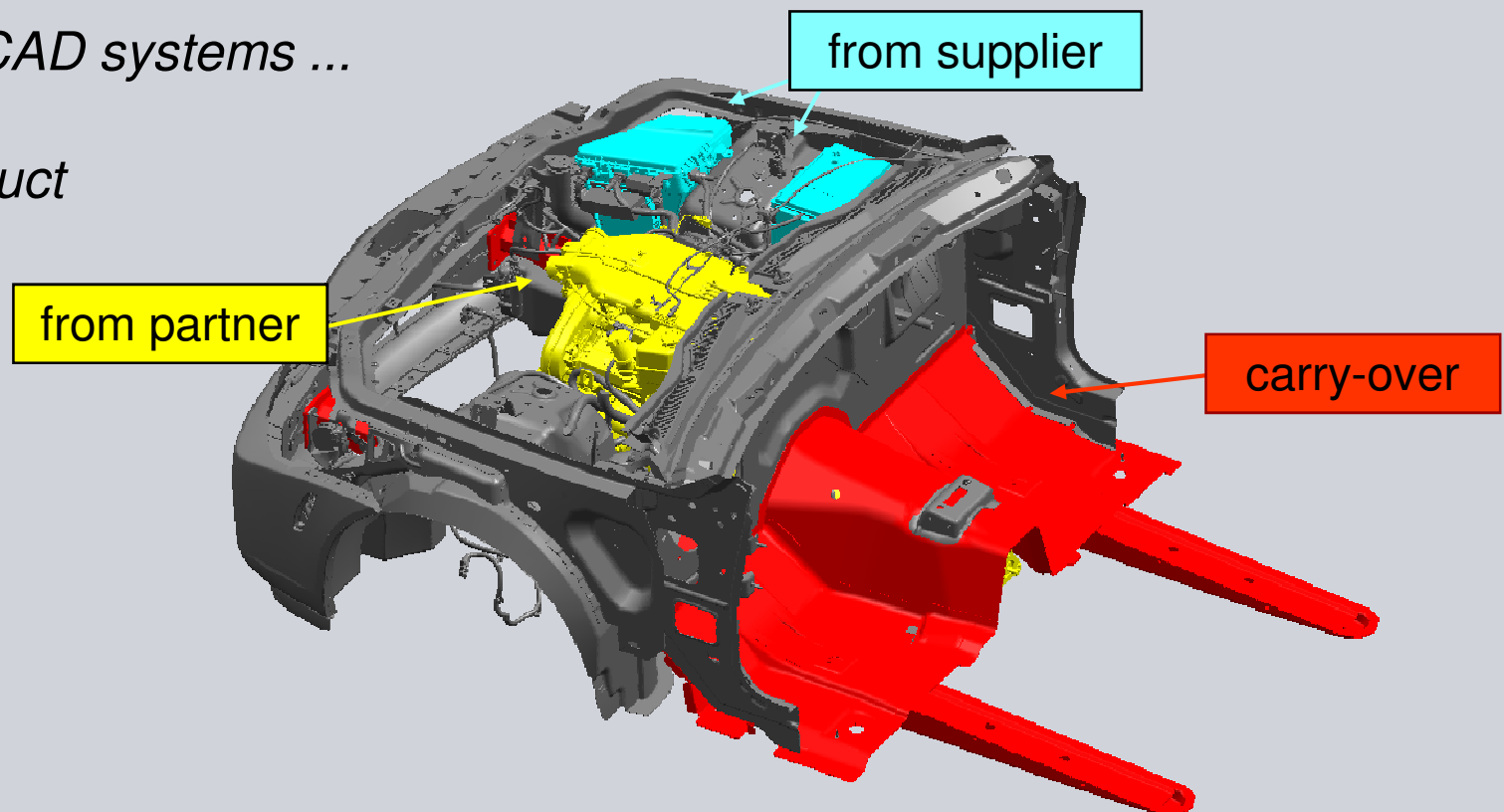
## The need for Multi-CAD

*Different design teams*

*Different locations*

*Different CAD systems ...*

*ONE product*



## When is Multi-CAD support important?

### Collaboration

Product design & manufacture has become increasingly collaborative & distributed

- Partnerships
- Suppliers
- Mergers & acquisitions

***Different CAD Systems***

Need to incorporate subassemblies and parts from other CAD systems into NX design environment



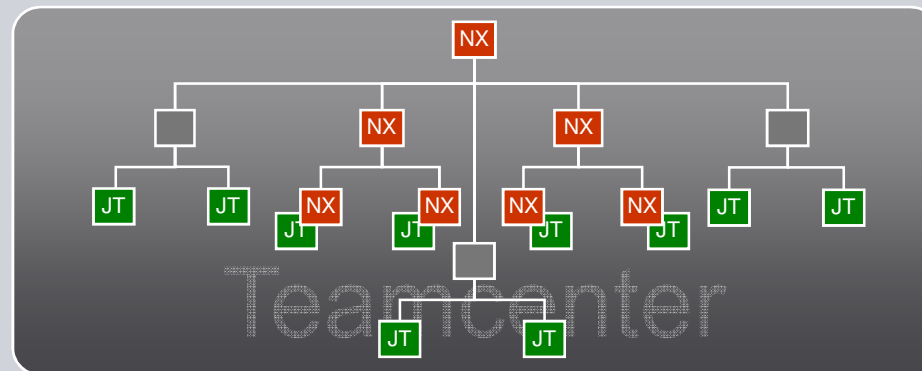
# Solving Multi-CAD with NX, Teamcenter, and JT



Teamcenter represents structure



JT represents Multi-CAD geometry



*Structure & JT*

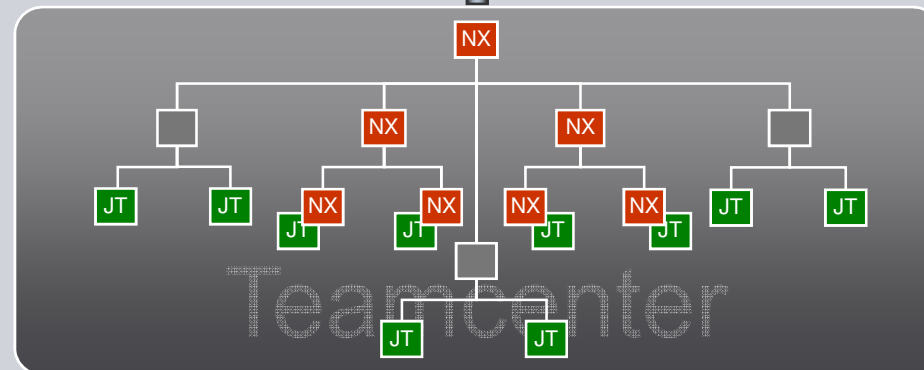
Teamcenter CAD  
integrations

Classic  
multi-site

Global  
multi-site

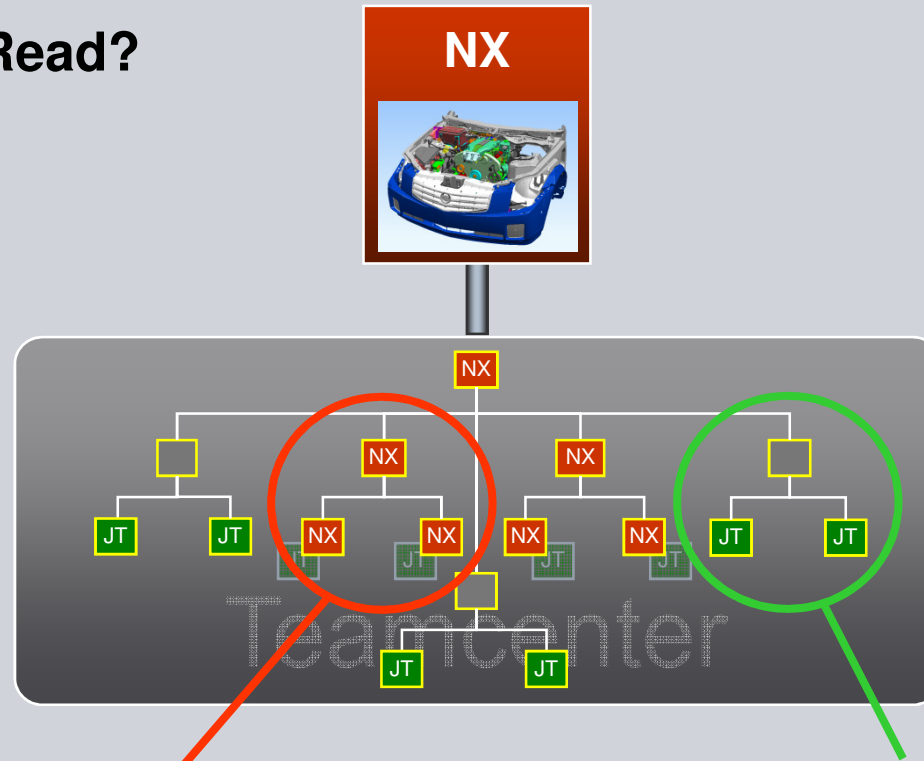
Teamcenter  
Import

# NX



## Solving Multi-CAD with NX, Teamcenter, and JT

### What Does NX Read?



#### NX Data

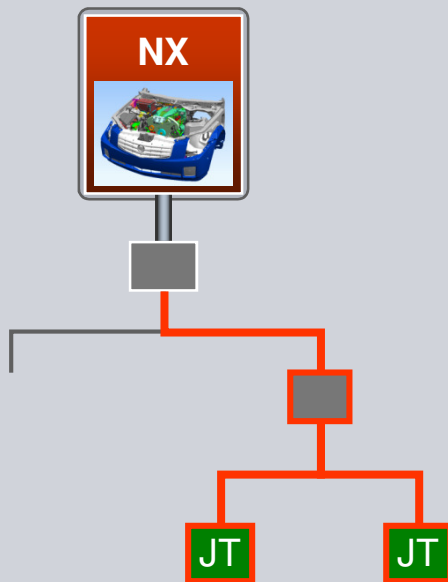
**Reads NX datasets  
as normal**

#### Multi-CAD Data

**Builds structure on load  
Reads JT Geometry**

## How it works in NX 5

### Loading a Multi-CAD assembly



NX creates assembly structure during load (structure synch)

Loads geometry from JT file

Creates & populates MODEL & FACET ref set

Sets reference set according to load options

Number	R...	Reference Set
000633	A	
001010	A	Entire Part
000970	A	Entire Part
000971	A	Lightweight ("FACET")
000939	A	Lightweight ("FACET")
000942	A	Lightweight ("FACET")
000972	A	Lightweight ("FACET")
000971	A	Lightweight ("FACET")
000973	A	Lightweight ("FACET")
000939	A	Lightweight ("FACET")
000943	A	Lightweight ("FACET")
000958	A	Entire Part
000976	A	Entire Part
001006	A	Entire Part
000954	A	Entire Part
000993	A	Lightweight ("FACET")
001012	A	Lightweight ("FACET")
001011	A	Lightweight ("FACET")

## Multi-CAD Enhancements in NX 6

### Consistency with NX Loading

Loading of PMI & Reference Geometry governed by Partial Loading load option

- Controlled by customer defaults in NX 5

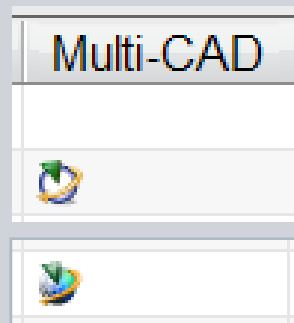
Setting	What's Loaded from JT File
<b>Partial Loading ON</b>	
MODEL ref set	B-rep
LIGHTWEIGHT ref set	Faceted representation
Entire Part	Everything
<b>Partial Loading OFF</b>	
Any reference set	Everything



## Multi-CAD Enhancements in NX 6

### New Assembly Navigator column

Indicates with components are loaded from JT



JT component – **some** data loaded

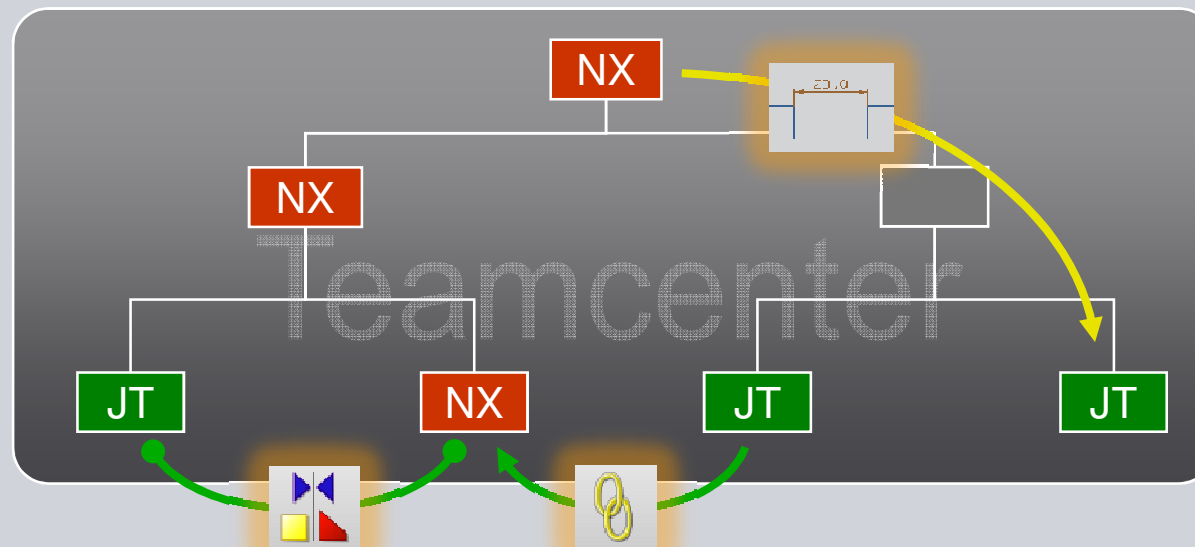
JT component – **all** data loaded

## Multi-CAD Enhancements in NX 6

### Inter-part associativity

Associative references to Multi-CAD geometry (e.g. constraints, WAVE, measurements, annotation)

Limited in NX 6 (e.g. JT file must not change, must be JT v9 with XT B-rep)



## Saving and Restoring Design Context

### Bookmark Enhancements

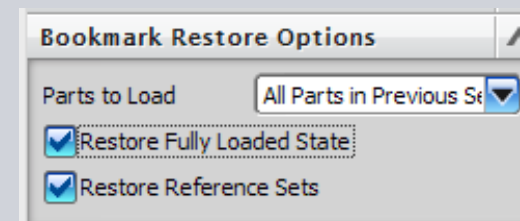
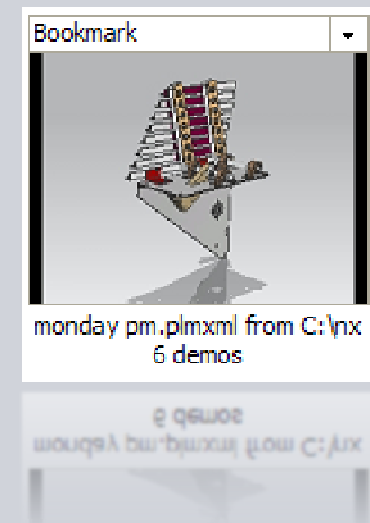
Supports Multi-CAD data

Ability to restore more session information

- partially/fully loaded state of components
- all parts in session v displayed part
- collapse/expand state of Assembly Navigator

### Benefit

More accurate and complete reconstruction of session state

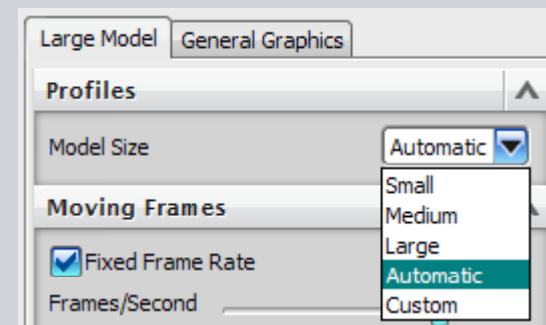


## Large Model Visualization

### Automatic Performance Setting

Sets graphical level of detail depending on hardware and model complexity

Adapts when more or less is displayed



### Benefits

Optimal graphics performance without user tuning

## Selection of Faceted Faces, Edges, Vertices

### Increased Availability in NX 6

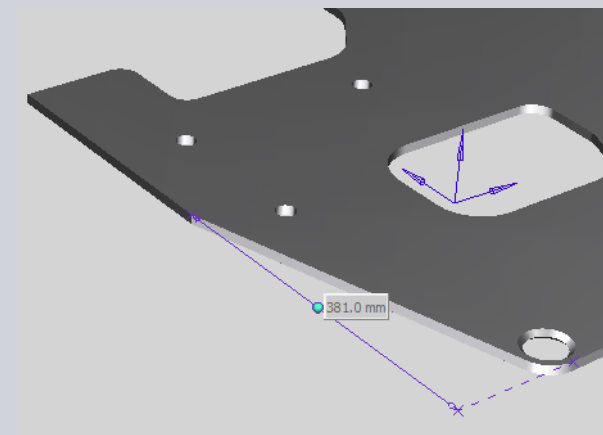
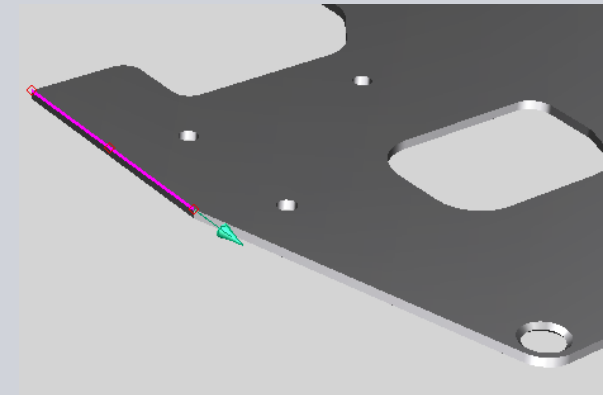
Facet topology selection available in more places

Examples:

- Move Component (completed coverage)
- Assembly Sequencing (motion definition)
- Project distance measurement (direction vector)

Selection uses standard UI for point, vector, & plane definition

- consistent with solid selection



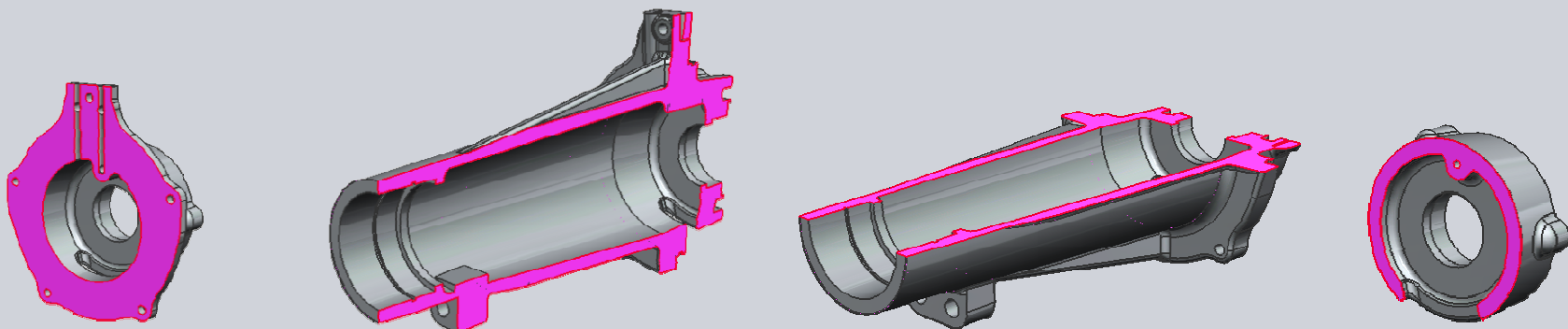
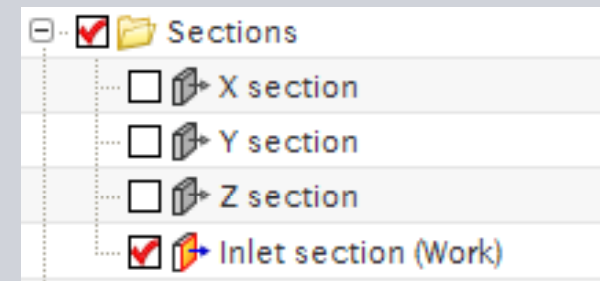
Projected Distance Measurement

## View Sectioning Improvements

### Saved sections

Multiple sections can be saved in a part

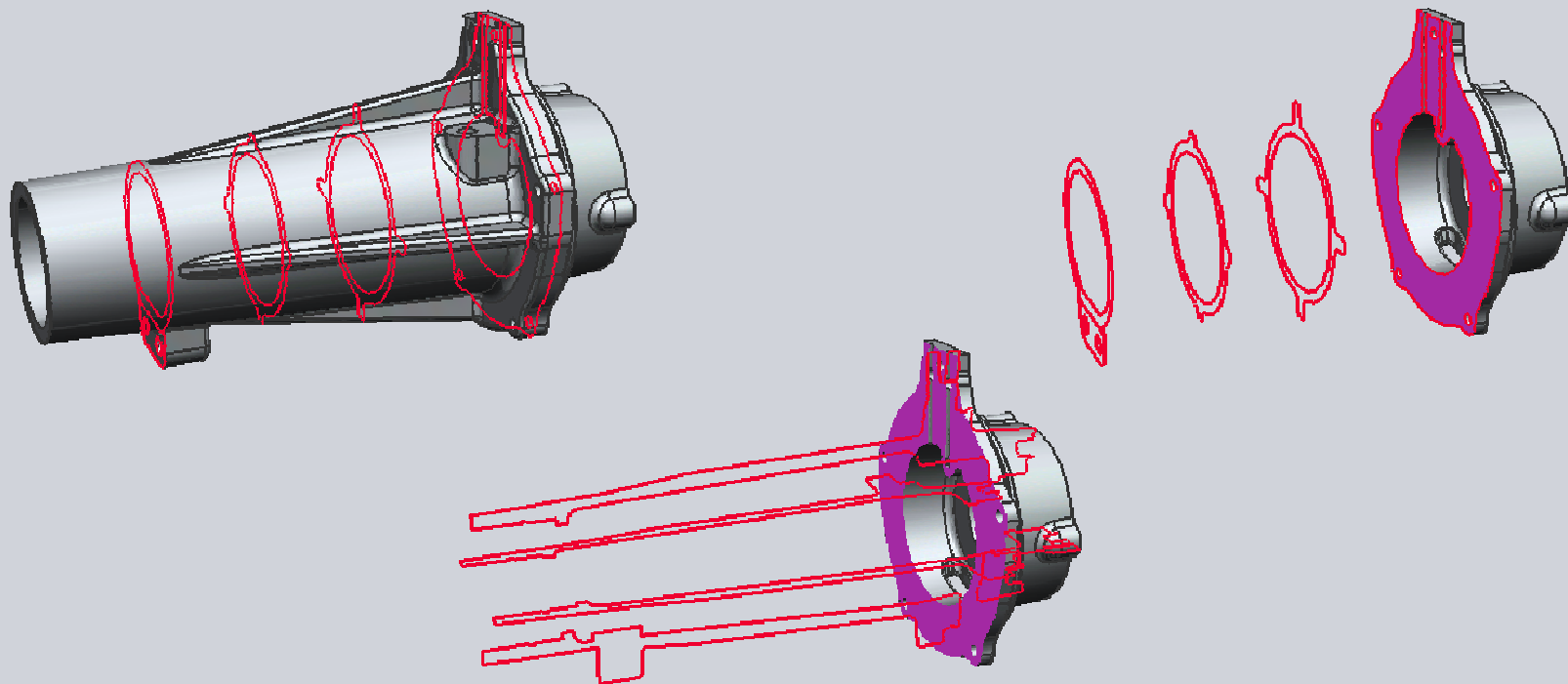
Easy switching between sections using Navigator



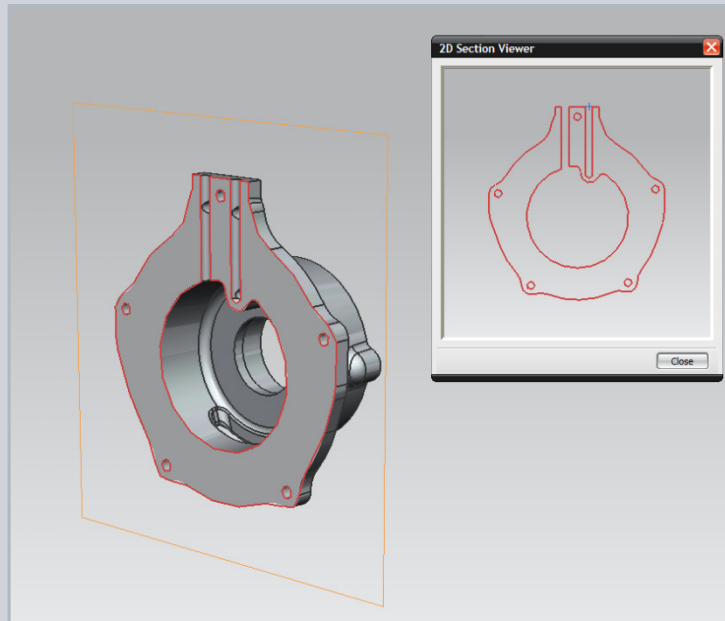
## View Sectioning Improvements

### Section Curve Display

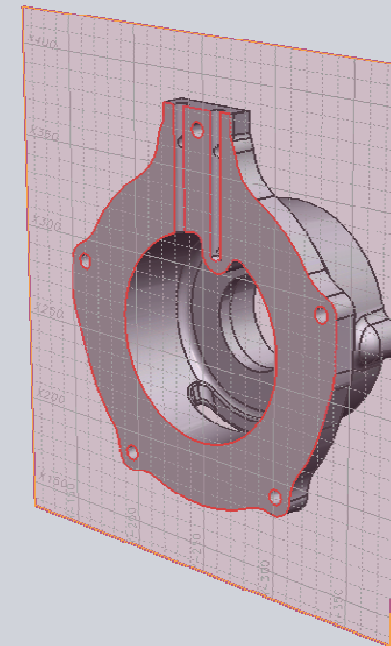
Ability to display curves for multiple sections simultaneously



## View Sectioning Improvements



2D Viewing Window



Grid Display

### Benefit

Easier visualization and measurement of section



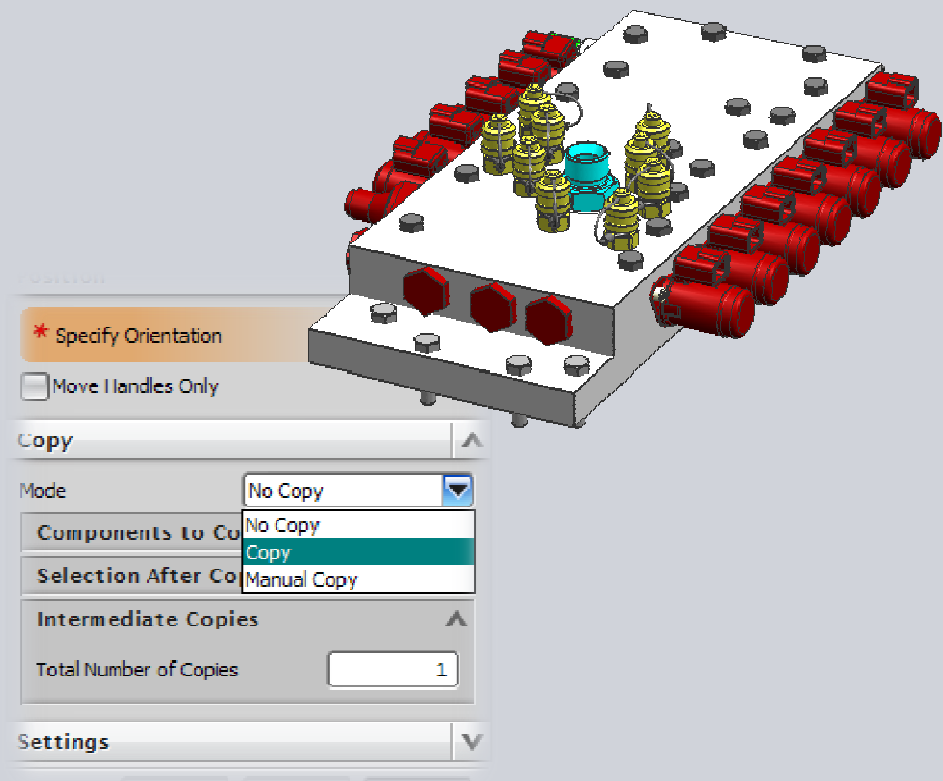
## Copy Option in Move Component

Ability to make copies of components in Move Component

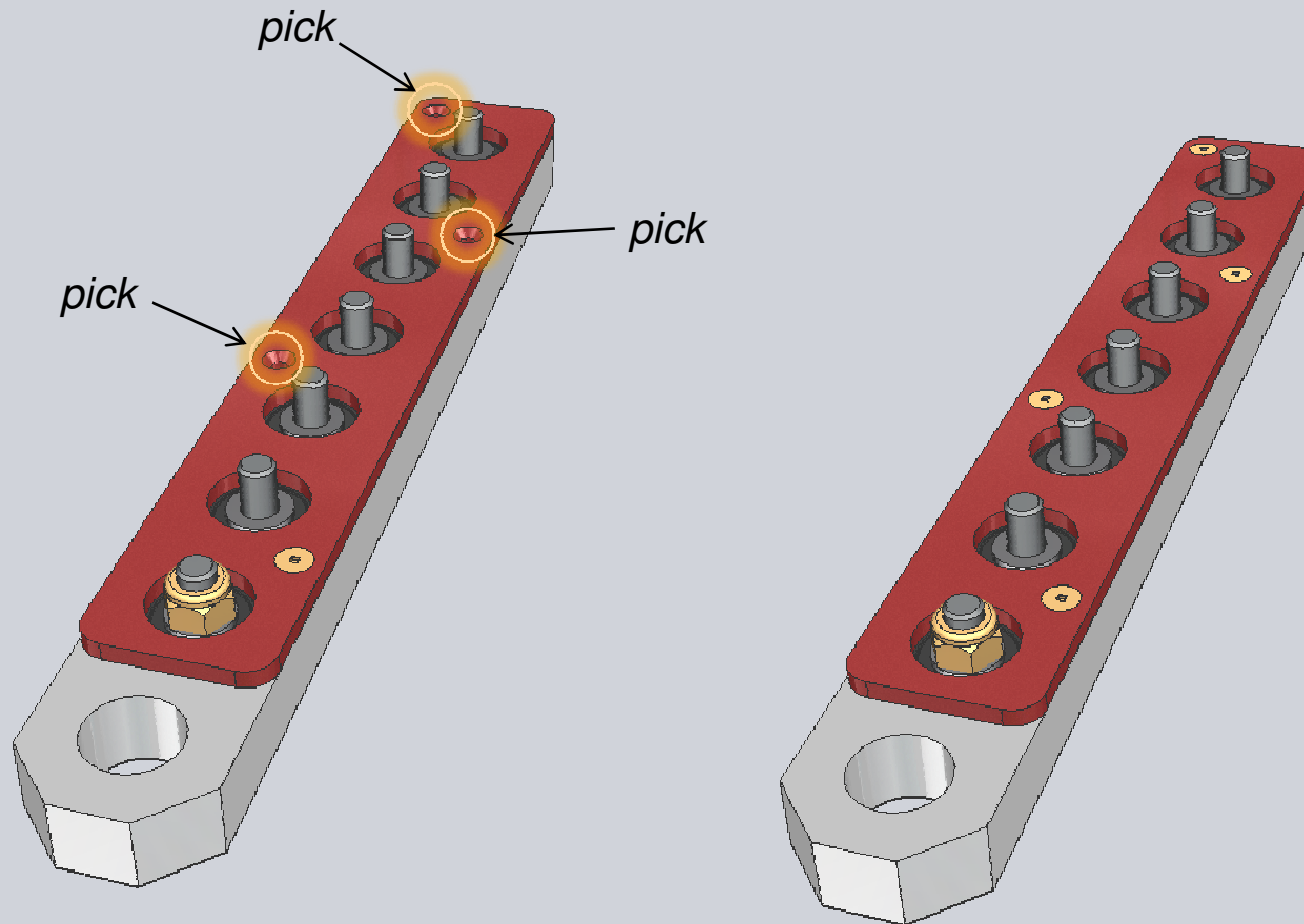
- Place single copy in new position
- Create pattern of copies

### Benefit

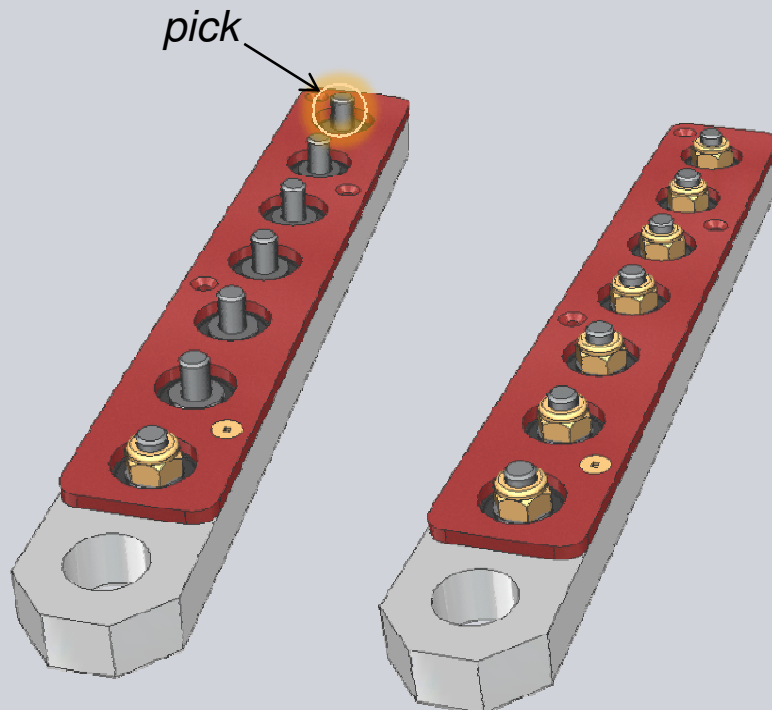
Fast creation and positioning of multiple instances



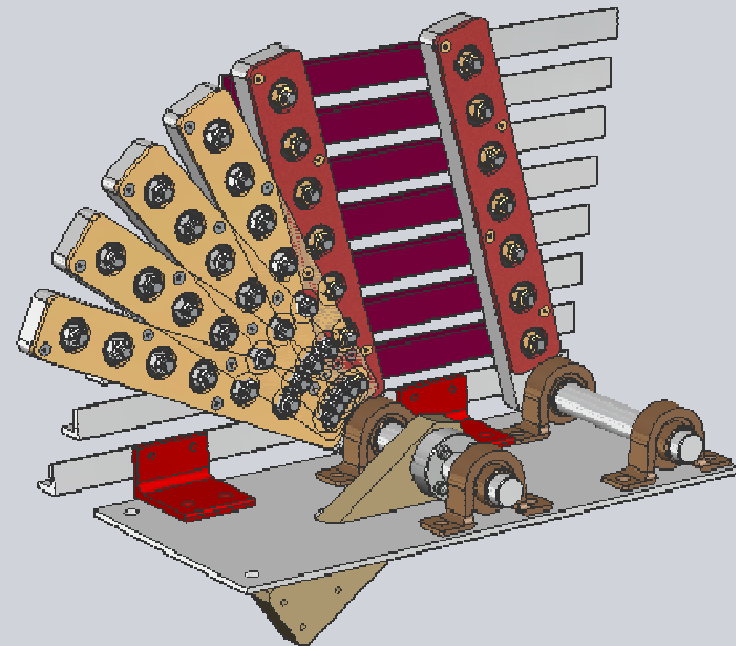
# Copy Option in Move Component



## Copy Option in Move Component



Intermediate copies - linear

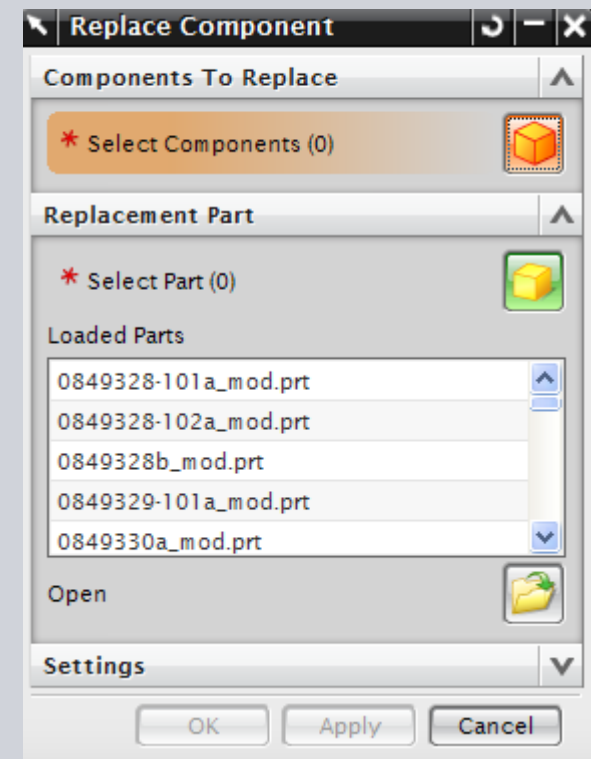
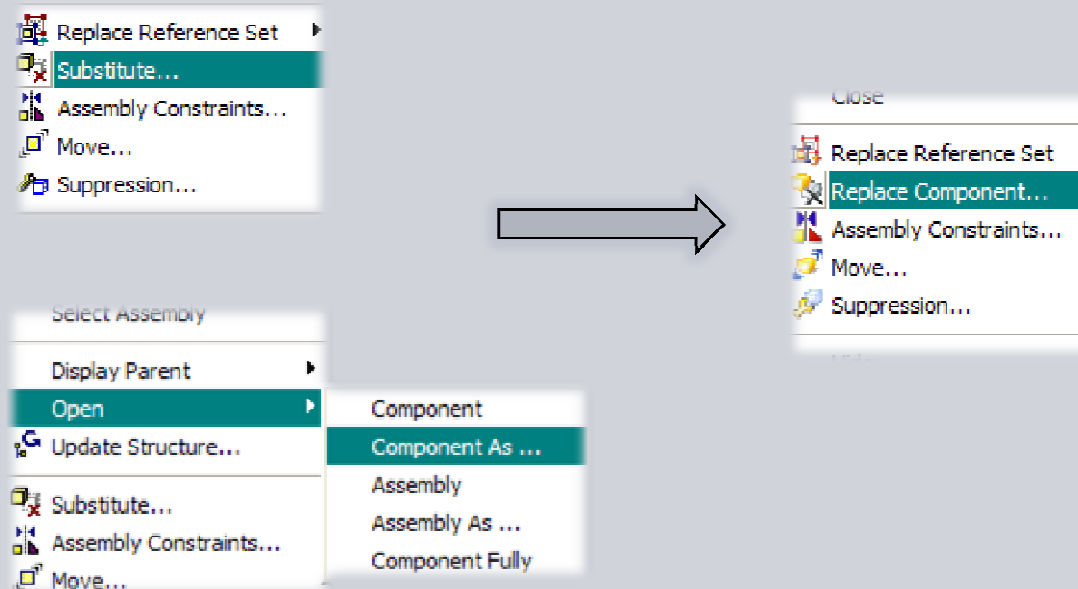


Intermediate copies - angular

## Replace Component

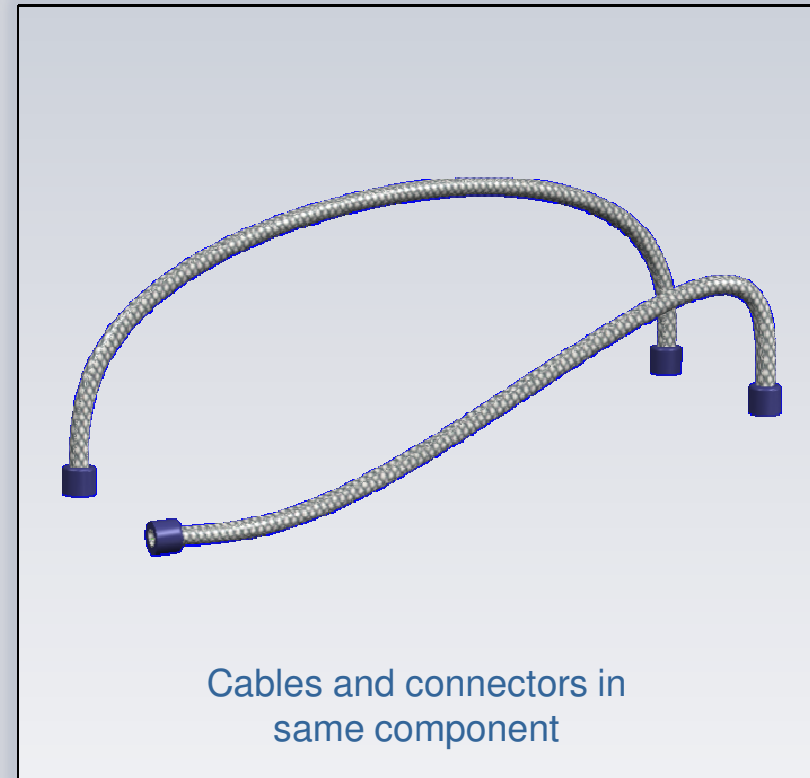
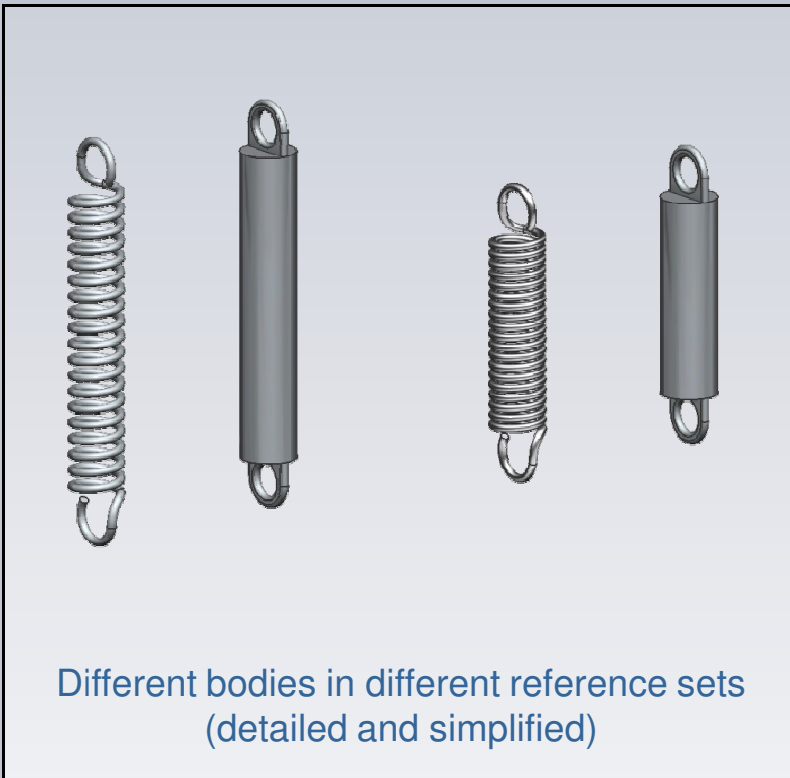
Consolidation of Substitute Component and Open As into one command

Supports functionality from both NX 5 commands



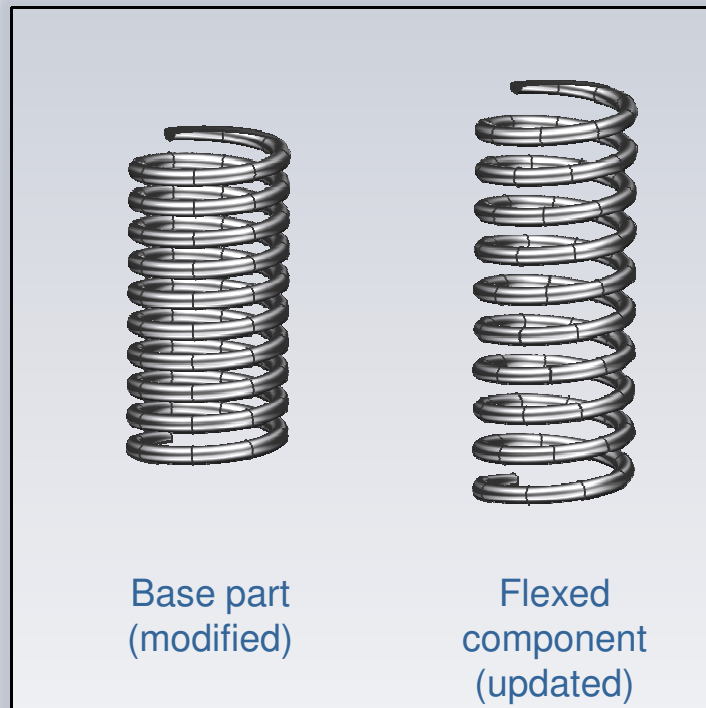
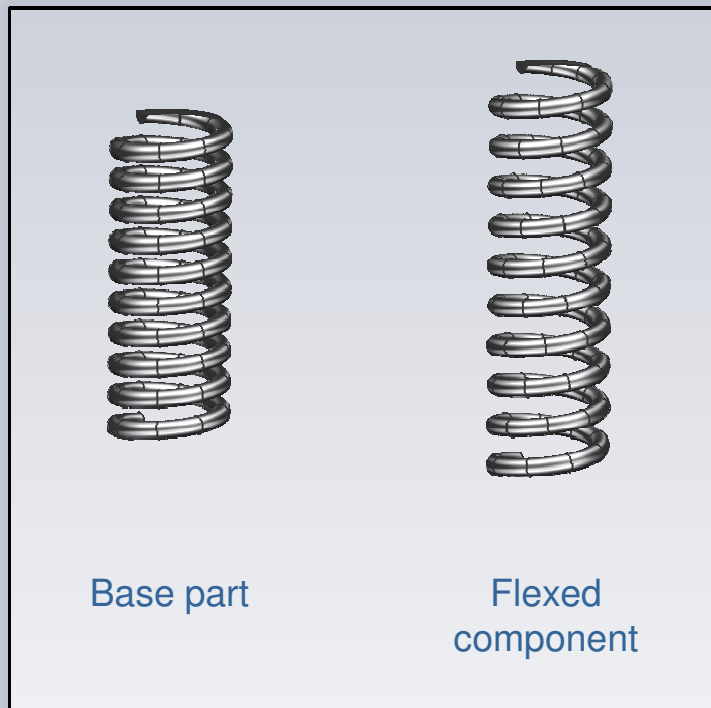
## Flexible Components Improvements

Flexible component can include more than one body



## Flexible Components Improvements

Flexed components can be updated when base definition changes



## Movie Creation

Ability to create movies of NX sessions

- Assembly sequence export
- Screen capture of NX session

Supports various video compression formats

- Codec must be already installed on computer

